

WHAT IS CLAIMED IS:

5 1. A method of transmitting data, comprising:
negotiating a data rate between a rate negotiator and a first telephony device; and
renegotiating the negotiated data rate between the rate negotiator and a system having a
second telephony device to allow data transmission between the first and second telephony
devices.

10 2. The method of claim 1 wherein the first and second telephony devices each
comprises a modem.

15 3. The method of claim 1 wherein the data rate negotiation comprises setting the
negotiated data rate based on a first telephony device data rate and a rate negotiator data rate.

20 4. The method of claim 3 wherein the negotiated data rate is set to the lower of the
first telephony device data rate and the rate negotiator data rate.

25 5. The method of claim 1 wherein the data rate renegotiation comprises setting the
renegotiated data rate based on a system data rate and the negotiated data rate.

30 6. The method of claim 5 wherein the system further comprises a data exchange, and
further comprising negotiating a second telephony device data rate between the data exchange,
and setting the system data rate based on the negotiated second telephony device data rate.

7. The method of claim 5 wherein the renegotiated data rate is set to the lower of the
system data rate and the negotiated data rate.

35 8. The method of claim 5 wherein the data rate renegotiation is performed over a
packet based network.

9. The method of claim 8 wherein the data rate renegotiation further comprises
inhibiting receipt of data packets from the packet based network.

10. The method of claim 5 wherein the data rate renegotiation further comprises
retraining the first telephony device with the renegotiated data rate.

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11. A method of synchronizing a data rate, comprising:
initializing a data rate;
receiving a data rate from a first telephony device;
setting a negotiated data rate based on the initial data rate and the data rate for the first
10 telephony device;
receiving a data rate from a system; and
setting a renegotiated data rate based on the negotiated data rate and the system data rate.

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12. The method of claim 11 wherein the negotiated data rate is set to the lower of the
initial data rate and the data rate for the first telephony device.

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13. The method of claim 11 wherein the setting of the negotiated data rate comprises
setting the data rate for the first telephony device to the negotiated data rate.

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14. The method of claim 13 wherein the setting of the renegotiated data rate
comprises resetting the set data rate for the first telephony device to the renegotiated data rate.

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15. The method of claim 11 wherein the renegotiated data rate is set to the lower of
the negotiated data rate and the system data rate.

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16. The method of claim 11 wherein the receiving of a second data rate comprises
negotiating the system data rate between a second telephony device and a data exchange.

17. The method of claim 16 wherein the system data rate negotiation comprises
setting a data rate for the second telephony device to the system data rate.

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18. The method of claim 17 wherein the setting of the renegotiated data rate
comprises resetting the set data rate for the second telephony device to the renegotiated data rate.

19. The method of claim 16 wherein the second telephony device comprises a modem.

20. The method of claim 11 wherein the first telephony device comprises a modem.

5 21. The method of claim 11 wherein the renegotiation of the data rate is over a packet based network.

10 22. The method of claim 21 wherein the data rate renegotiation comprising inhibiting receipt of data packets.

15 23. A method of synchronizing a data rate, comprising:
exchanging data rates between a first data exchange and a first telephony device;
negotiating a first data rate based on the exchanged data rates between the first data exchange and the first telephony device;
exchanging data rates between a second data exchange and a second telephony device;
negotiating a second data rate based on the exchanged rates between the second data exchange and the second telephony device;
exchanging the first and the second data rates over a packet based network; and
negotiating a third data rate based on the exchanged first and second data rates.

20 24. The method of claim 23 further comprising retraining the first and the second telephony devices with the third data rate.

25 25. The method of claim 23 wherein the first and the second telephony devices each comprises a modem.

30 26. The method of claim 23 wherein the first data rate negotiation comprises setting the first data rate to the lower of the exchanged data rates between the first data exchange and the first telephony device.

35 27. The method of claim 23 wherein the second data rate negotiation comprises setting the second data rate to the lower of the exchanged data rates between the second data exchange and the second telephony device.

28. The method of claim 23 wherein the third data rate negotiation comprises setting

the third data rate to the lower of the exchanged first and second data rates.

5 29. The method of claim 23 wherein the third data rate negotiation comprises inhibiting receipt of data packets.

10 30. A data exchange comprising a rate negotiator capable of negotiating a data rate with a first telephony device, and renegotiating the negotiated data rate with a system comprising a second telephony device to allow data transmission between the first and second telephony devices.

15 31. The data exchange of claim 30 wherein the rate negotiator initializes a data rate, and sets the negotiated data rate based on the first telephony device data rate and the initial data rate.

20 32. The data exchange of claim 31 wherein the rate negotiator sets the negotiated data rate to the lower of the first telephony device data rate and the initial data rate.

25 33. The data exchange of claim 30 wherein the rate negotiator sets the renegotiated data rate based on a data rate for the system and the negotiated data rate.

30 34. The data exchange of claim 33 wherein the rate negotiator sets the renegotiated data rate to the lower of the system data rate and the negotiated data rate.

35 35. The data exchange of claim 33 wherein the rate negotiator is further capable of retraining the first telephony device with the renegotiated data rate.

30 36. The data exchange of claim 30 further comprising a data pump capable of exchanging data signals between a circuit switched network and a packet based network at the renegotiated data rate.

35 37. The data exchange of claim 36 wherein the rate negotiator inhibits receipt of data packets from the packet based network during data rate renegotiation.

38. A signal transmission system, comprising:
5 a first telephony device having a data rate;
a first data exchange having a data rate;
a first rate negotiator which exchanges the data rates between the first data exchange and
the first telephony device and negotiates a first data rate based on the exchanged data rates
between the first data exchange and the first telephony device;
10 a second telephony device having a data rate;
a second data exchange having a data rate;
a second rate negotiator which exchanges the data rates between the second data exchange
and the second telephony device and negotiates a second data rate based on the exchanged data
rates between the second data exchange and the second telephony device, wherein the first and
the second rate negotiators cooperate to exchange the first and the second data rates and negotiate
15 a third data rate based on the exchanged first and second data rates; and
a packet based network coupling the first data exchange to the second data exchange.

39. The signal transmission system of claim 38 wherein each of the first and the
second rate negotiators sets the data rate of its respective telephony device to the third data rate.

40. The signal transmission system of claim 38 wherein the first and the second
telephony devices each comprises a modem.

41. The signal transmission system of claim 38 wherein the first data rate comprises
25 the lower of the exchanged data rates between the first data exchange and the first telephony
device.

42. The signal transmission system of claim 38 wherein the second data rate
comprises the lower of the exchanged data rates between the second data exchange and the
30 second telephony device.

43. The signal transmission system of claim 38 wherein the third data rate comprises
the lower of the first and the second data rates.

44. The signal transmission system of claim 38 wherein each of the first and the

second rate negotiators inhibit reception of data packets from the packet based ~~network~~ during the third data rate negotiation.

5 45. The signal ~~transmission~~ system of claim 38 wherein each of the first and the second data exchanges comprises a data pump which exchanges data signals between the packet based network and its respective telephony device.

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